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FOREST PEST

SITUATION

in the states
of the

INTERMOUNTAIN REGION

Prepared by
the

FOREST SERVICE
U. S. Department of Agriculture

Ogden, Utah

Fall - 1964

FOREWORD

Damage to the forests of the Intermountain Region from widespread, virulent infestations of destructive forest pests continues to be serious. Valuable timber stands on national forests, national parks, public domain, Indian lands, and forests on state and private lands are threatened.

Our growing populations and western industrial development today are requiring more of the multiple benefits of the forests than ever before. New industries are steadily expanding the already long list of uses for wood. Many Intermountain payrolls depend on the forest and its products. Utilization of the Intermountain area forests is still far below full productive capacity predestining a manyfold increase in wood-using industries as the population explosion creates additional demands. Tourism is largely based on the recreational, scenic, and aesthetic properties of the forests. Watershed values also are dependent upon the maintenance of a forest cover to protect the soil mantle.

New and more efficient control methods are constantly being devised to reduce the unit cost of protection against forest insects and diseases. For example, aerial spraying of spruce budworm infestations costs about \$1.30 per acre--a lot of protection at a reasonable price. Bark beetle treatment is more costly because each tree attacked must be located and treated individually on the ground, but in spite of greatly increased labor costs, the cost today is no higher than it was in 1930. As access to the stands is provided by much-needed forest roads, utilization by logging and mechanization are gradually lessening unit costs of control.

Forest insect and disease outbreaks like human disease epidemics are not permanently stopped once suppressed. Constant vigilance and prompt action is required to prevent new outbreaks from starting. Suppression measures are often only temporary in the never-ending battles to save forest stands or human lives, as the case may be.

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THE REGIONAL PICTURE

Most serious and destructive of the pests now in epidemic stages are the mountain pine beetle, the Douglas-fir beetle, the spruce budworm, and dwarfmistletoe. These are the pests toward which the Region's major suppression efforts are to be directed in 1965 and in the ensuing years until the immediate threat to the valuable forest stands has been reduced or eliminated.

The spruce budworm which was brought under control by aerial-chemical applications on two million acres in the three-year period of 1955 through 1957, has built up again in the Douglas-fir and true fir types in the forests of southern Idaho. Aerial spraying of parts of the infestation has been accomplished in the past two years.

Mountain pine beetle damage continues to grow in virulence and to spread widely in the lodgepole pine stands of northern Utah, southern Idaho, and western Wyoming, an area rich in timber resources and accompanying recreational and watershed values.

Land managers and loggers have combated the Douglas-fir beetle for many years by removal of infested trees in timber operations. Epidemics of this bark beetle have been on the decline for the past two years except for an area in southeastern Idaho on the Sawtooth National Forest. Extensive and costly damage in that area from the Douglas-fir beetle is a continuing problem.

Dwarfmistletoes degrade lumber quality, reduce growth potential and inhibit reproduction over large areas of Douglas-fir, lodgepole pine, ponderosa pine, and western larch. Control by cutting practices produces good results against this disease. Cutover and burned areas in the Region are being surveyed for dwarfmistletoe with the objective of eventual elimination of this pest from young stands.

A second group of tree killing pests causing current local damage includes aspen leaf tier, aspen leaf blight, spruce mealybug, fir needle miner, fir engraver beetle, lodgepole shoot moth, and lodgepole needle miner. Each of these pests has the ability to cause a destructive epidemic. The status of each is therefore carefully checked and appraised each year. The spruce mealybug, fir engraver beetle, fir needle miner, and aspen leaf blight have shown increasing tendencies the past few years and may become serious.

A third group of insects and diseases present within the Region is capable of causing serious losses at any time. Insects such as the Engelmann spruce beetle, Ips beetle, tussock moth, lodgepole pine tip moth, larch sawfly, and pine scales insect may erupt suddenly without warning. Tree diseases such as the rusts, canker, fungi, and wood and root rotting fungi take a heavy annual toll and are difficult to combat. Good management is our present most effective control tool.

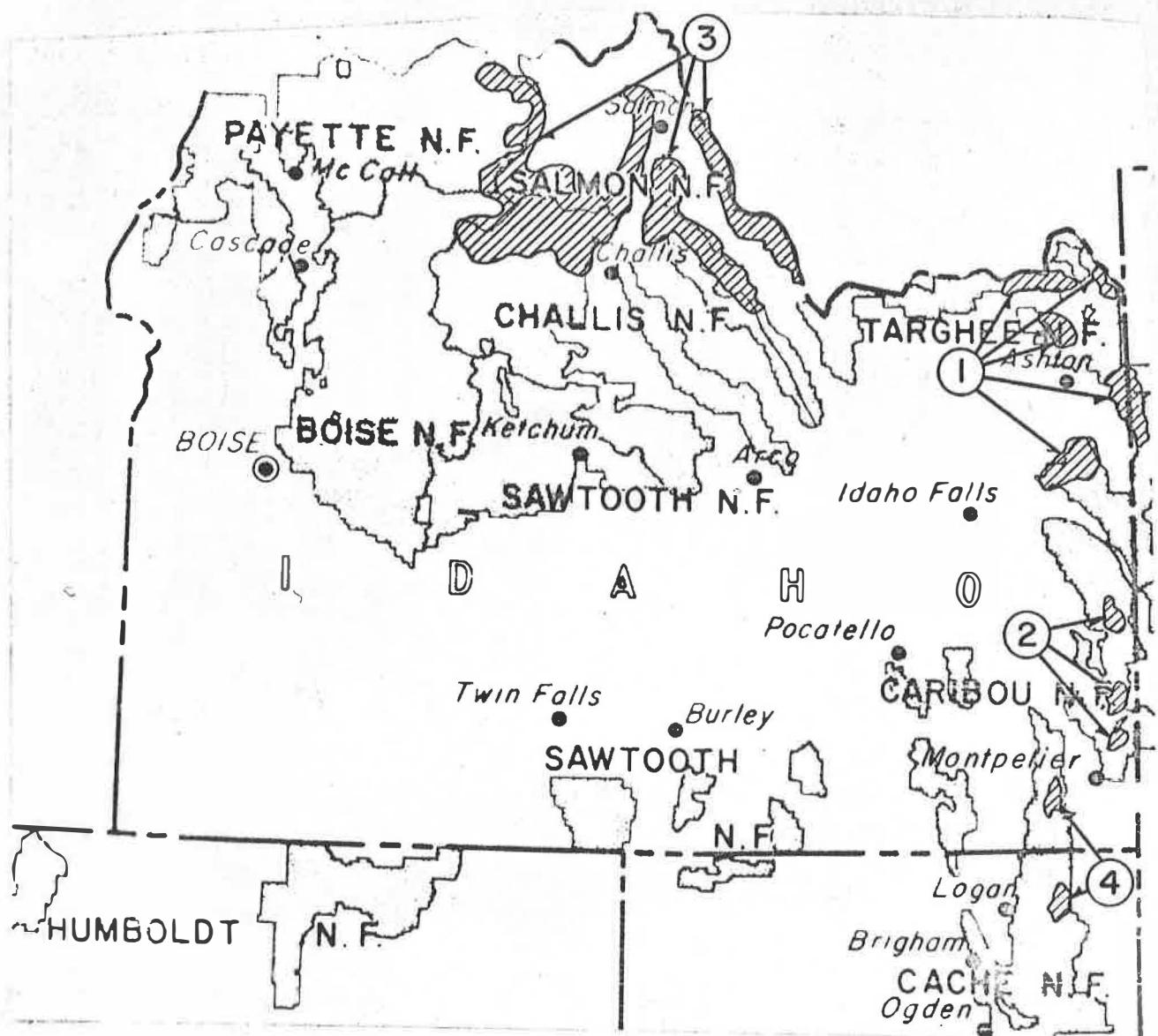
Virgin stands of mature and overmature trees make up most of the timber resource of the Intermountain area. Such stands are very susceptible to

bark beetle attack and often contain chronic disease. Still it is difficult to explain the sudden increases and decreases of forest pest activity. Experimental studies are being conducted to determine the cause of these variations. As the overmature stands are cut over and brought under management, disease losses and widespread bark beetle outbreaks will be reduced. In addition, many pest outbreaks will undoubtedly be controlled by logging alone.

Research on the behavior and habits of forest pests is providing needed information on prevention of outbreaks through cultural practices and in addition to practical experience, lead the way to the use of more efficient means to control forest pest outbreaks.

Logging control methods are not used in wild, primitive, wilderness, and national park areas.

FOREST PEST OUTBREAKS IN SOUTHERN IDAHO IN NEED OF CONTROL



Map No.	Name of Area	Name of Insect	Host Tree	Acreage Infested	Number Trees Proposed for Treatment	Stumpage Value of Infested Timber-\$		Stumpage Value of Threatened Stands-\$
						Proposed for Treatment	Infested Timber-\$	
1	Targhee	Mt. Pine Beetle	LPP	90,000	185,400	135,300	12,500,000	
2	Caribou	Mt. Pine Beetle	LPP	1,500	6,400	4,425	10,000,000	
3	Salmon- Challis	Spruce Budworm	DF, EnS & true fir	1,000,000	----	15,000,000	126,350,000	
4	Cache	Mt. Pine Beetle	LPP	3,000	7,400	19,845	820,000	

FOREST PEST SITUATIONS IN
SOUTHERN IDAHO

The Spruce Budworm

The spruce budworm is currently epidemic over a million acres of Douglas-fir-true fir forest on five National Forests in southern Idaho. The infestation centers adjoin vast areas of uninfested host timber into which spread is eminent unless control measures are taken.

The timber of southern Idaho is vitally important to the State's economy as raw material for the many lumbering and forest products industries wholly or partially dependent upon them as a source of supply. Threatened also are important watersheds and popular recreational areas.

The Mountain Pine Beetle

Since about 1960 the mountain pine beetle has caused a steadily increasing amount of damage in southern Idaho. Losses in many stands, however, have been kept to a minimum by coordinated logging and chemical suppression measures.

The most serious and aggressive outbreak is on the Targhee National Forest. Over 1,150,000 trees are currently infested and will die in 1965. On one Ranger District at least half the volume of lodgepole pine has already been killed. This epidemic threatens huge volumes of lodgepole pine timber as well as nationally famous recreation areas within Grand Teton and Yellowstone National Parks. Timber industry and the forest related employment on the Targhee National Forest alone provide about 1,300,000 man-hours of work to people in 12 nearby towns.

Outbreaks of this same bark beetle are presently found on the Caribou National Forest near Soda Springs, on the Cache National Forest near Paris, and on the Sawtooth National Forest near Sun Valley. Control in 1962 and 1963 successfully suppressed an outbreak near McCall, Idaho.

The Douglas-fir Beetle

This beetle is active in many areas of southern Idaho, primarily on the Boise, Sawtooth, Caribou, and Challis National Forests. Localized infestations have destroyed many virgin timber stands. As the national forests approach maximum allowable cut goals, and intensive management, protection is mandatory to reach high level production. Douglas-fir beetle epidemics have the capacity to wipe out large areas of choice timber, thus, disrupting cutting cycles for an entire rotation. Control of this beetle by logging is hampered in most areas by inaccessibility.

Other Insects

The tussock moth, a defoliator of Douglas-fir and true fir became serious on the Boise National Forest in 1963. A natural virus spray, disseminated

by airplane, brought about the complete collapse of the outbreak without damage to other forest life.

Insects feeding on branch tips and terminal leaders are causing an increasing amount of damage on the Targhee National Forest. On some areas this insect has destroyed all 1964 needles.

Spider mites were particularly serious in 1964, causing noticeable damage to many conifers. Mite population changes are ordinarily sudden and erratic. Large populations are not of immediate concern unless they persist for several years.

Two insects, Anacampodes and the sagebrush defoliator, are damaging deer browse and range in southwestern Idaho on Bureau of Land Management land. Some suppression is planned for 1965 to avoid serious losses.

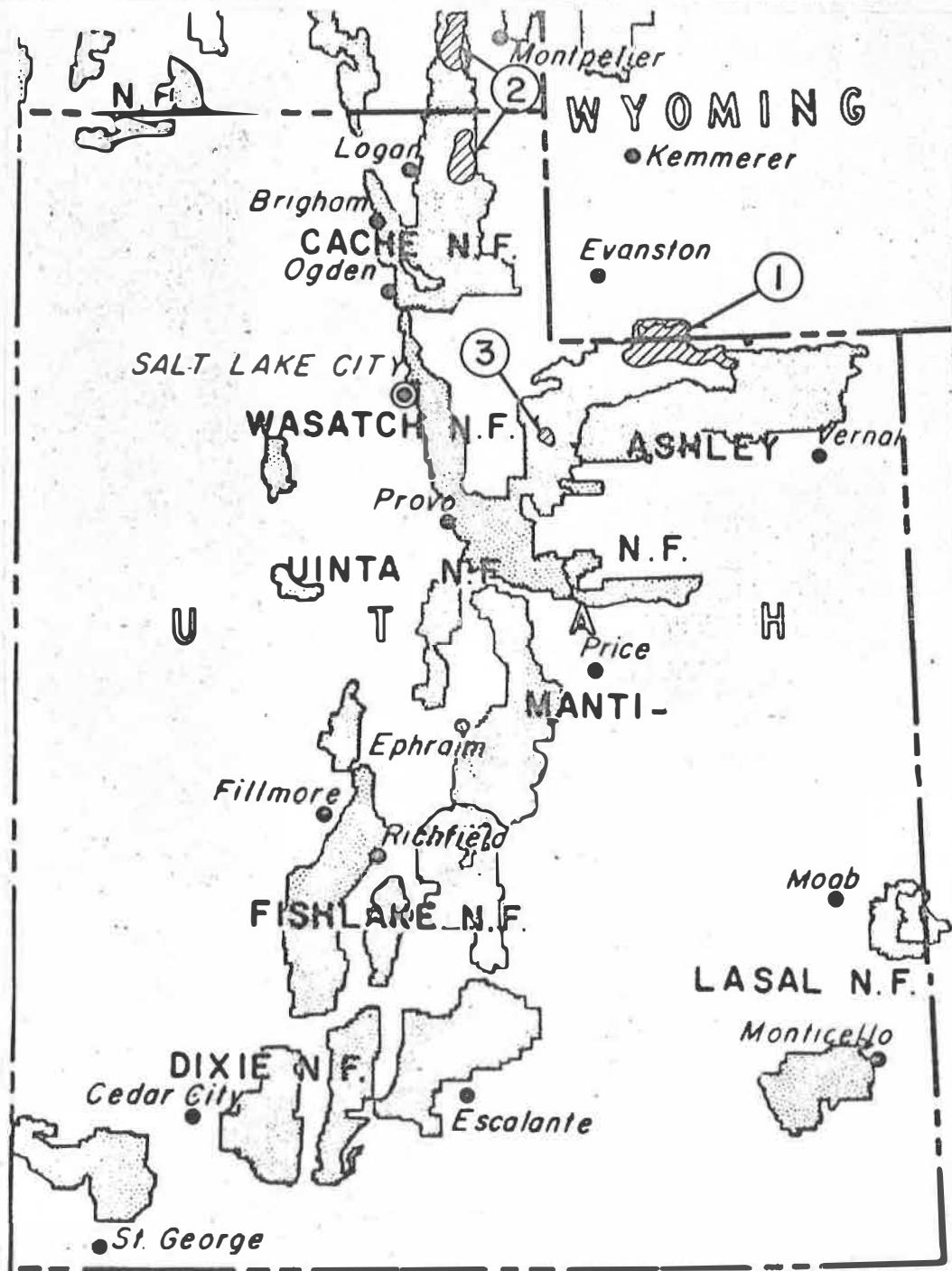
Forest Diseases

Surveys of dwarfmistletoe infections indicate that, depending on the locality, from 25 to 82 percent of the pine and 20 to 40 percent of the Douglas-fir in the southern part of the State is infected. These stands are valuable not only for lumber production, but also for scenic and recreation purposes. Control of this disease is accomplished by management practices. Cutover, burned-over, or otherwise cleared areas can be protected so that the young stand does not become infected. Research is being done in an effort to find a practical method of control of dwarfmistletoe in mature trees.

Needle cast fungus is another important disease of ponderosa pine especially in the lumber producing areas of the Payette and Boise National Forests. This disease causes reduction of growth and, eventually, death of the tree. Again, timber harvest is the only known method of control.

Other diseases such as yellow witches' broom, spruce broom rust, comandra rust, and white pine blister rust occur in the Region Four portion of the State and cause serious local loss. Again, harvest of infected trees is the only practical method of suppression. Much of the damage, however, occurs in areas which are inaccessible or where harvesting is otherwise not economical.

FOREST PEST OUTBREAKS IN UTAH IN NEED OF CONTROL



Map No.	Name of Area	Name of Insect	Host Tree	Acreage		Number of Infested Trees	Proposed Treatment	Infested Timber-\$	Stumpage Value of Infested Timber-\$	Stumpage Value of Threatened Stands-\$
				Infested	Treatment					
1	Wasatch	Mt. Pine Beetle	LPP	7,630		4,110		1,011,260	16,500,000	
2	Cache	Mt. Pine Beetle	LPP	8,000		7,400		19,845	820,000	
3	Wasatch	Dwarf-mistletoe	LPP	1,200				3,750		

FOREST PEST SITUATION IN UTAH

The Mountain Pine Beetle

After nearly five years of suppression effort the mountain pine beetle outbreaks in the lodgepole pine stands on the Uinta Mountains within the Ashley and Wasatch National Forests are in the final cleanup stage. On this area of high recreational use and timber production, over a million trees were killed. Even though the area shows the ravages of the insect outbreak, most of it still contains productive stands.

After a period of dormance, it is expected that this bark beetle may again become a problem. An intensive effort is being made to enlarge the market for the timber volume in this area.

In 1964 an outbreak on the Cache National Forest south of Logan Canyon was treated chemically with good results. We expect that with another year of suppression, this outbreak will be overcome.

The Douglas-fir Beetle

The Douglas-fir beetle, for many years a destructive pest of overmature Douglas-fir, began to decline in Utah in 1963. The decline continued in 1964. Prior to 1963 this bark beetle was the most damaging pest of the southern Utah forests.

Other Insects

The fir engraver beetle continues to kill true firs locally throughout the State. The loss is scattered, seldom occurring in stands where logging is feasible. Suppression is difficult and expensive. Because of these obstacles, control is seldom attempted.

In 1964 an upsurge of insect damage occurred on the pinyon-juniper forest of the Indian Reservation south of Roosevelt, Utah. These trees of the Upper Sonoran Zone provide a good cover over much of the arid area of Utah where little else will grow. The pinyon pine is particularly valuable for Christmas trees and for its nut crops. Two species of tussock moths are defoliating the trees and a pitch nodule moth feeding in the branch tips destroys the nut crop.

The white fir needle miner, which can become a serious pest, increased considerably in 1964, the first time since it was controlled in 1957. The moth is most serious on the Dixie National Forest adjoining Bryce Canyon National Park.

Forest Diseases

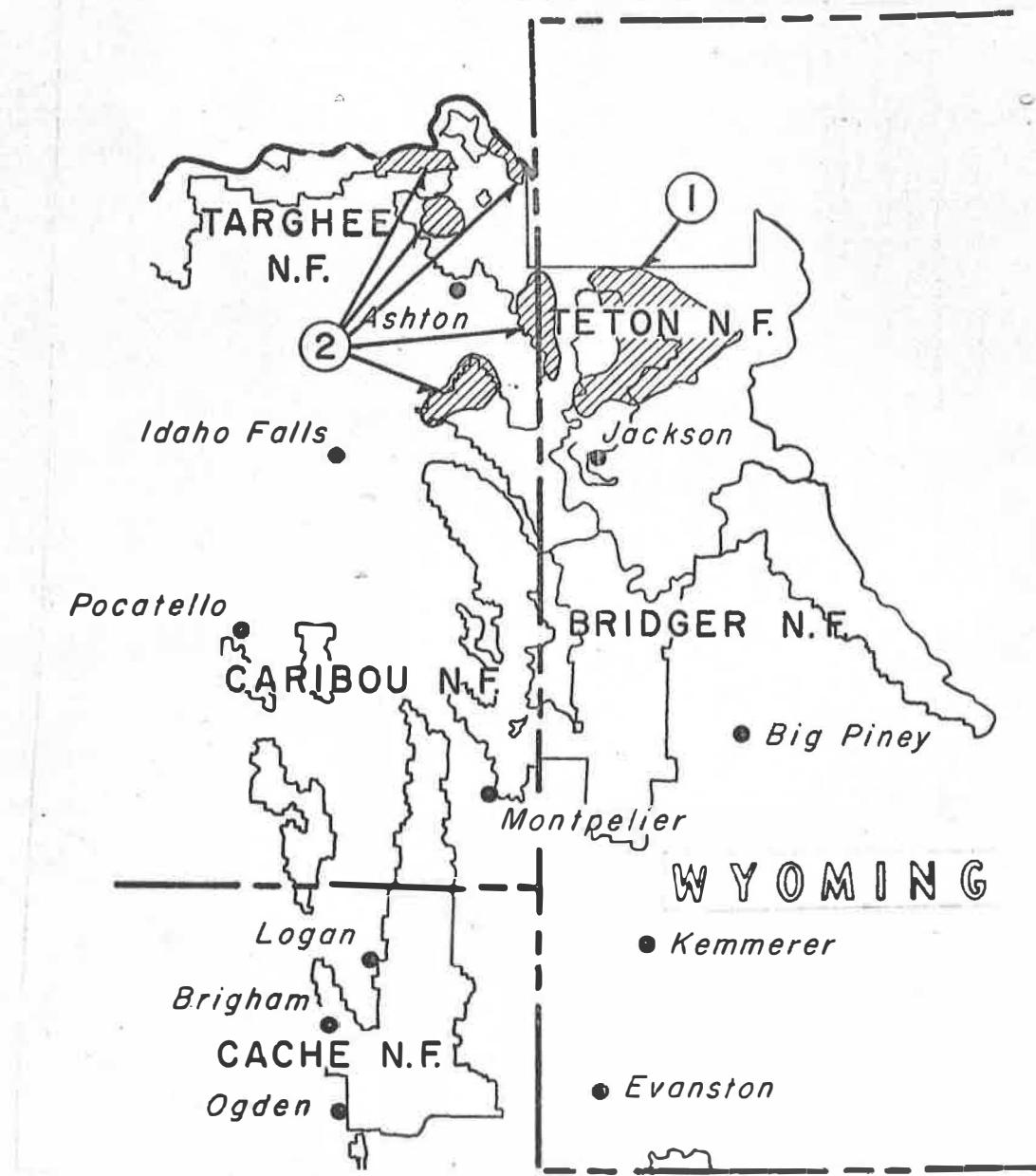
Dwarf mistletoe is the most prevalent and serious disease in the State. There are probably no extensive stands of Douglas-fir or lodgepole which

do not have some infection. Control work was started in 1963 on the Wasatch National Forest near Kamas, to protect young stands from future losses. Control within mature stands is not practical until harvesting is possible.

In 1963 and 1964, abnormally wet spring seasons encouraged the growth of many diseases. The aspen leaf blight has been very aggressive, causing serious defoliation of large areas of aspen. If cool, wet weather occurs generally in the spring of 1965, serious tree mortality can be expected. Some control measures may be necessary to protect aspen stands in high value recreational areas such as campgrounds and picnic spots.

Methods are being studied to prevent infection of aspen reproduction by aspen canker and/or heart rot on cutover stands.

FOREST PEST OUTBREAKS IN WESTERN WYOMING IN NEED OF CONTROL



W Y O M I N G

Map No.	Name of Area	Name of Insect	Host Tree	Acreage Infested	Number Trees	Stumpage Value of Infested Timber-\$	Stumpage Value of Threatened Stands-\$
					Proposed for Treatment		
1.	Teton	Mt. Pine Beetle	LPP	50,000	205,000	106,200	16,875,000
2	Targhee	Mt. Pine Beetle	LPP	20,000	185,400	133,300	12,500,000

FOREST PEST SITUATION IN
WESTERN WYOMING

The Mountain Pine Beetle

Infestations are explosive in areas of the Teton National Forest adjacent to Grand Teton National Park and portions of the Hoback River Drainage. The infestation also serious within the boundaries of the Grand Teton National Park and the Teton Wilderness Area. Recreational values are high in this area.

The epidemic is extremely "hot" and little hope of complete suppression can be expected for the next few years. The serious threat this outbreak poses to Yellowstone National Park is increased by an outbreak of almost equal potential infesting the lodgepole stands on the west slopes of the Teton Range on the Targhee National Forest. Both of these infestations are moving north. Without control they can be expected to converge near the southern boundary of Yellowstone Park. Unless checked, the union of these two outbreaks would be capable of destroying over \$6,000,000 worth of timber on the National Forests and many thousands of acres of scenic and recreational forests within Grand Teton and Yellowstone National Parks.

The Engelmann Spruce Bark Beetle

From 1957 to 1962 a serious outbreak of the Engelmann spruce beetle destroyed large areas of spruce timber along the upper portions of the Green River. The trees, many of which were over six feet around, were valuable for lumber production, recreation, and scenery. Suppression efforts, through logging assisted by chemical control, were successful in controlling the outbreak and averting any major loss to stands within the Wind River Wilderness Area.

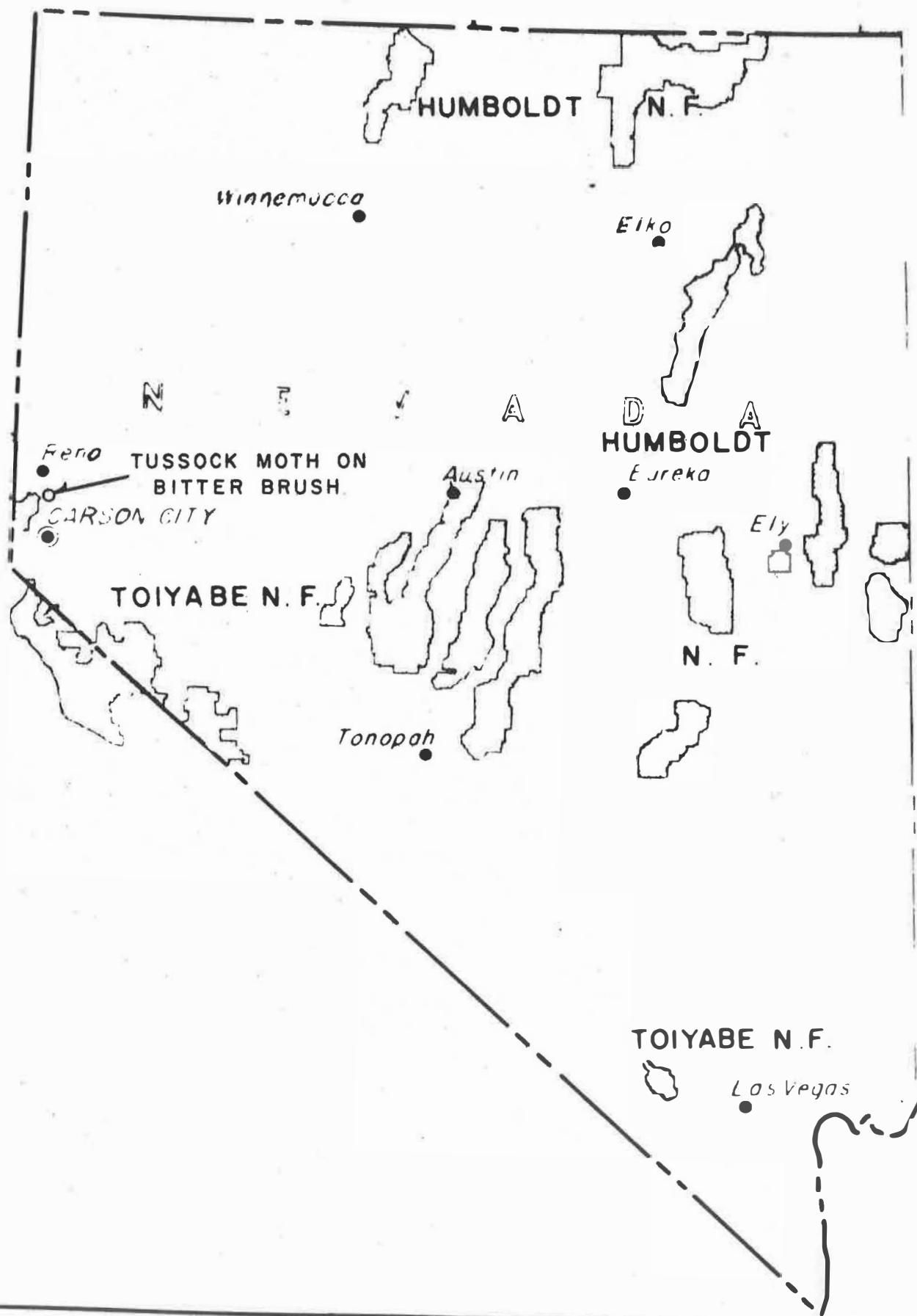
Other Insects

The fir engraver is the only major forest insect which has caused any noticeable damage in the past few years. Scattered losses are continuing but the low value of the trees and the high cost of control make it uneconomical to consider suppression at the present damage levels.

Forest Diseases

Heavy infections of dwarfmistletoe and comandra rust occur on the Targhee, Teton, and Bridger National Forests. Control of these two destructive diseases will become possible as the stands are made accessible to management.

INSECT OUTBREAK IN NEVADA IN NEED OF CONTROL



FOREST PEST SITUATION IN NEVADA

Insects

The western pine beetle, which had been active in the immediate past in ponderosa pine stands on Charleston Mountain near Las Vegas, Toiyabe National Forest, is now quiescent. That infestation as well as a tussock moth outbreak in the Wheeler Park, Lehman Cave National Monument area within the Humboldt National Forest and a mountain pine beetle-Jeffrey pine beetle outbreak adjacent to Lake Tahoe on private land have been successfully suppressed.

In 1964 the only significant damage from insects was caused by a tussock moth defoliating bitter brush, a major deer browse plant. The outbreak is on Bureau of Land Management lands in northern Nevada.

Disease

Several areas of ponderosa and Jeffrey pine on the Toiyabe National Forest are heavily infected with dwarfmistletoe and in need of treatment to prevent further tree mortality and reduction in stand values.